LDWSF
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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Office of Response and Restoration
Coastal Protection and Restoration Division
c/o EPA Region X (ECL-117)
1200 Sixth Avenue
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October 1, 2005

Ms. Allison Hiltner
US EPA Region X
1200 Sixth Avenue
Seattle, WA 98101

Re: Lower Duwamish Waterway Group (LDWG), Draft Food Web Model Memorandum 1: Objectives, Conceptual Model, and Selection of Food Web Model, dated September 9, 2005

Dear Allison:

NOAA appreciates the opportunity to provide comments on the Draft Food Web Model Memorandum 1: Objectives, Conceptual Model, and Selection of Food Web Model (dated September 9, 2005) prepared by Windward Environmental, LLC. NOAA is a trustee for aquatic habitats, fish and other aquatic species in the coastal areas of the United States. The Lower Duwamish provides important habitat as well as migration access to and from the Duwamish/Green River watershed for juvenile salmonids, including ESA listed Chinook. Therefore, NOAA is very interested in participating in the remedial process on the Lower Duwamish Waterway to ensure that the remedy selected is protective of NOAA trust resources.

I understand that revisions to this and subsequent food web model memos will not occur until all are completed. While that may be more efficient from an administrative perspective, there needs to be a mechanism to address comments as they are generated to improve the process as we go forward. Addressing comments in a year in a final food web model document will not serve that purpose. There are too many details missing at this stage to have confidence that this food web model approach and site specific data currently available will be adequate to model this system.

Comments:
What is the relationship between the FWM and Early action sites? Will the model use measured or estimated residual concentrations? Will water/sediment/tissue concentration monitoring data be collected to evaluate model predictions?

Conceptual model (Figure 3-1) should include non-resuspension flux, which is an important pathway for release of PCBs in sediment into the water column. (Thibodeaux and Bierman 2003). This pathway was discussed at the last LDWG FWM meeting (April 27, 2005) with

Todd Bridges. Todd discussed the significant impact of non-resuspension flux on the Hudson River modeling.

Table 3-1 (compartments): "*Water column water: water above the sediment surface that is less influenced by fluxes from sediment resuspension than bottom water.*" Non-resuspension flux from sediment may be more important "fluxes from sediment resuspension."

"*Bottom water: water at or near the sediment surface that experiences fluxes of chemicals from re-suspension of sediments and is the layer closest to porewater to receive chemicals via diffusion.*" Non-resuspension flux from sediment in other systems is an important source of PCB released to water column in addition to diffusion.

Table 3-2. The distinction between "water column water" and "bottom water" needs to be made clear. This reviewer is not aware of other models using these terms. See Arnot & Gobas 2004, Table 1 (bottom water is not a parameter). "*Bottom water in the model will be represented by exposure to specified fractions of water column water and porewater.*" Please explain what this means.

"p.8, Aqueous uptake pathways: LDWG is proposing to use equilibrium partitioning to calculate concentrations in "bottom water" using "specified fractions" of "water column water and porewater" because of the uncertainty of other factors (e.g. biological disturbance). This reviewer has several problems with this approach: 1) it is vague and poorly defined, e.g. what does "specified fractions" mean? 2) using EqP will underestimate release of PCBs from sediment to water column because it does not account for nonresuspension flux; and 3) where will the "water column water" data come from?

How will performance of the model be evaluated?

Model-specific specifications:
p.9: "*Model can be applied to different areas of the LDW given sufficient location specific data.*" What type and amount of location-specific data would be sufficient? How will that be determined/evaluated?

p.9: "*Model can be used to predict chemical concentrations in tissue or sediment with the degree of accuracy necessary to make RI/FS decisions.*" How will this degree of accuracy be determined?

p.9-10, Empirical model evaluation: "*...subarea-scale concentrations in sediment calculated using inverse-distance weighted interpolations.*" Please describe in more detail the approach and data manipulations: what sediment data were used in the interpolations and how were the interpolations conducted? Were any sediment or tissue data excluded from these evaluations? Were interpolations conducted using the transformed and/or normalized concentration data? Please provide the interpolation shape files and underlying attribute data.

p. 15: "*The Arnot and Gobas (2004) model can be used in conjunction with estimates of future chemical concentrations in sediment to predict future chemical concentrations in tissue.*" Please explain the basis for this conclusion. Does this assume that water column PCB concentrations can be estimated from sediment? If so, how will this be done? If not, what is the source for water column data in the future scenario?

References

Arnot JA and Gobas FAPC. 2004. A food web bioaccumulation model for organic chemicals in aquatic ecosystems. Environ Toxicol Chem. 23:2343-2355.

Thibodeaux LJ and Bierman VI. 2003. The bioturbation driven chemical release process.Environmental Science and Technology. July1, 253A-258A.

Thank you for the opportunity to submit these comments. Please feel free to contact me (553-6323) or Jay Field (526-6404) if you have any questions.

Sincerely,

Marla Steinhoff
Coastal Resource Coordinator, NOAA

Cc: (by email): Alyce Fritz
Rich Brooks
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